Toxicology and Applied Pharmacology

Official Journal of the Society of Toxicology

Founding Editors
Frederick Coulston
Harry W. Hays
Arnold J. Lehman

Editorial Board
Yves Alarie
Arthur L. Aronson
Stephen D. Aust
Anne P. Autor
William O. Berndt
Herbert Blumenthal
Joseph F. Borzelleca
Donald R. Buhler
William W. Carlton
Rose Dagirmanjian
Felix A. de la Iglesia
Robert L. Dixon
John Doull
Robert T. Drew
Donald J. Ecobichon
George C. Fuller
Arthur Furst
Vera C. Glocklin
Robert E. Gosselin
Jack E. Gray
Harold C. Grice
Paul B. Hammond
Wayland J. Hayes, Jr.
Robert Hill
Jack A. Hinson
Ernest Hodgson
Robert M. Hollingworth
Bo Holmstedt
Jerry B. Hook
Dennis P. H. Hsieh
David J. Jollow
Sam Kacew
Tetsuya Kamataki
Laurence Kaminsky
Kundan S. Khera
Renate D. Kimbrough
Robert R. Lauwreys
John J. Lech
Basil K. J. Leong
Paul Mazel
John R. McCoy
Rob S. McCutcheon
Robert E. Menzer
Ian C. Munro
Karl J. Netter
Paul M. Newberne
Stata Norton
Anthony K. Palmer
Emmett C. Pierce
Emil Poulsen
Mary L. Quaife
Jack L. Radomski
Donald J. Reed
Edward S. Reynolds
R. Craig Schnell
Bernard A. Schwetz
Edward A. Smuckler
Robert Snyder
Arthur A. Stein
Joseph C. Street
George M. Szczech
John A. Thomas
Gary A. Van Gelder
Ethard W. Van Stee
Mary Vore
Philip G. Watanabe
James L. Way

Editor:
ROBERT A. NEAL

Associate Editors:
MARION W. ANDERS
JAMES E. GIBSON
FREDERICK GUENGERICH
A. WALLACE HAYES
CURTIS D. KLAASSEN
TOM S. MIYA
JANE F. ROBENS
HANSPETER WITSCHI

Volume 56, 1980

ACADEMIC PRESS

New York London Toronto Sydney San Francisco

Copyright © 1980 by Academic Press, Inc.

ALL RIGHTS RESERVED

No part of this publication may be reproduced or transmitted in any form, or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the copyright owner.

The appearance of the code at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use, or for the personal or internal use of specific clients. This consent is given on the condition, however, that the copier pay the stated per copy fee through the Copyright Clearance Center, Inc., (21 Congress Street, Salem, Massachusetts 01970), for copying beyond that permitted by Sections 107 and 108 of the U.S. Copyright Law. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale. Copy fees for pre-1980 articles are the same as those shown for current articles.

MADE IN THE UNITED STATES OF AMERICA

CONTENTS OF VOLUME 56

NUMBER 1, OCTOBER 1980

J. F. NARBONNE. Time Course of Induction of Microsomal Enzymes following Dietary Administration of a Polychlorinated Biphenyl (Phenoclor DP6) 1

D. L. BARBER AND H. W. COLVIN, JR. Influence of Dietary Protein on the Response of Rats Receiving Toxic Levels of Warfarin 8

JAMES B. LABORDE AND CAROLE A. KIMMEL. The Teratogenicity of Ethylene Oxide Administered Intravenously to Mice 16

EUGENE J. ZAWOISKI. Effect of L-Glutamic Acid on Glucocorticoid-Induced Cleft Palate in Gestating Albino Mice 23

CAROLE A. KIMMEL, LESTER D. GRANT, CAROL S. SLOAN, AND BETH C. GLADEN. Chronic Low-Level Lead Toxicity in the Rat. I. Maternal Toxicity and Perinatal Effects 28

LESTER D. GRANT, CAROLE A. KIMMEL, GERALD L. WEST, CHRISTINA M. MARTINEZ-VARGAS, AND JAMES L. HOWARD. Chronic Low-Level Lead Toxicity in the Rat. II. Effects on Postnatal Physical and Behavioral Development 42

BRUCE A. FOWLER, CAROLE A. KIMMEL, JAMES S. WOODS, ERNEST E. MCCONNELL, AND LESTER D. GRANT. Chronic Low-Level Lead Toxicity in the Rat. III. An Integrated Assessment of Long-Term Toxicity with Special Reference to the Kidney 59

JAMES R. OLSON, THOMAS A. GASIEWICZ, AND ROBERT A. NEAL. Tissue Distribution, Excretion, and Metabolism of 2,3,7,8-Tetrachlorodibenzo-*p*-dioxin (TCDD) in the Golden Syrian Hamster 78

KAZUO NAKAGAWA, MASUKICHIRO ASAMI, AND KINYA KURIYAMA. Inhibition of Release of Lysosomal Enzymes in Young Rat Brain by Lead Acetate 86

V. ALIVERTI, L. BONANOMI, E. GIAVINI, V. G. LEONE, AND L. MARIANI. Effects of Glycerol Formal on Embryonic Development in the Rat 93

MICHAEL J. FASCO AND MARK J. CASHIN. Effects of Induction on *R*- and *S*-Warfarin and Metabolite Concentrations in Rat Plasma 101

CHARLES R. CLARK AND CONNIE L. VIGIL. Influence of Rat Lung and Liver Homogenates on the Mutagenicity of Diesel Exhaust Particulate Extracts 110

V. S. HIATT AND K. BRUCE JACOBSON. Interaction of Metal Ions with tRNA: Effects of Cadmium, Zinc, and Magnesium Ions on Chromatographic Behavior of Tyrosine and Leucine tRNA Species 116

WILLIAM J. WADDELL AND CAROLYN MARLOWE. Tissue and Cellular Disposition of Paraquat in Mice 127

A. ROBERT JEFFCOAT, W. BRUCE GIBSON, PEDRO A. RODRIGUEZ, THOMAS S. TURAN, PHILIP F. HUGHES, AND MARGARET E. TWINE. Zinc Pyridinethione: Urinary Metabolites of Zinc Pyridinethione in Rabbits, Rats, Monkeys, and Dogs after Oral Dosing 141

NUMBER 2, NOVEMBER 1980

DAVID L. ROERIG, ANDREW T. HASEGAWA, GERALD J. HARRIS, KENNETH L. LYNCH, AND RICHARD I. H. WANG. Occurrence of Corneal Opacities in Rats after Acute Administration of l-α-Acetylmethadol 155

JOSEPH F. BORZELLECA, JOHN L. EGLE, JR., GORDON R. HENNIGAR, H. HARVEY KLEIN, EDWARD J. KUCHAR, RICHARD W. LANE, AND PAUL S. LARSON. A Toxicologic Evaluation of 5-Ethoxy-3-trichloromethyl-1,2,4-thiadiazole (ETMT) 164

Erik Söderlund, Erik Dybing, and Sidney D. Nelson. Nephrotoxicity and Hepatotoxicity of Tris (2,3-dibromopropyl)phosphate in the Rat 171

W. P. McNulty, G. M. Becker, and H. T. Cory. Chronic Toxicity of 3,4,3′,4′- and 2,5,2′,5′-Tetrachlorobiphenyls in Rhesus Macaques 182

R. N. Harris and M. W. Anders. Effect of Fasting, Diethyl Maleate, and Alcohols on Carbon Tetrachloride-Induced Hepatotoxicity 191

Maria I. Diaz Gomez and Jose A. Castro. Covalent Binding of Carbon Tetrachloride Metabolites to Liver Nuclear DNA, Proteins, and Lipids 199

Saburo Omata, Tsuneyoshi Horigome, Yasunori Momose, Miyuki Kambayashi, Mitsuyoshi Mochizuki, and Hiroshi Sugano. Effect of Methylmercury Chloride on the *in Vivo* Rate of Protein Synthesis in the Brain of the Rat: Examination with the Injection of a Large Quantity of [^{14}C]Valine 207

Aviel Roy (Shapira), Uri Taitelman, and Simon Bursztein. Evaluation of the Role of Ionized Calcium in Sodium Fluroacetate ("1080") Poisoning 216

André H. Penninks and Willem Seinen. Toxicity of Organotin Compounds. IV. Impairment of Energy Metabolism of Rat Thymocytes by Various Dialkyltin Compounds 221

A. R. Dahl and T. J. Briner. Biological Fate of a Representative Lipophilic Metal Compound (Ferrocene) Deposited by Inhalation in the Respiratory Tract of Rats 232

C. A. Johnston, K. T. Demarest, K. M. McCormack, J. B. Hook, and K. E. Moore. Endocrinological, Neurochemical, and Anabolic Effects of Polybrominated Biphenyls in Male and Female Rats 240

Robert K. Lynn, David W. Donielson, Ajmal M. Ilias, John M. Kennish, Kenneth Wong, and H. B. Matthews. Metabolism of Bisazobiphenyl Dyes Derived from Benzidine, 3,3′-Dimethylbenzidine or 3,3′-Dimethoxybenzidine to Carcinogenic Aromatic Amines in the Dog and Rat 248

L. D. Foil, H. W. Chambers, R. S. Stinson, and B. Glick. Immunological Aspects of Tri-*o*-tolyl Phosphate-Induced Delayed Neurotoxicity in Chickens 259

M. Jacqueline Verrett, William F. Scott, Edilberto F. Reynaldo, Ellen K. Alterman, and Claudia A. Thomas. Toxicity and Teratogenicity of Food Additive Chemicals in the Developing Chicken Embryo 265

Garry G. Stebbins and R. Craig Schnell. Effect of Cadmium on Phenobarbital and Polycyclic Hydrocarbon-Induced Alterations in Hepatic Microsomal Monooxygenase Activity in the Rat 274

Douglas E. Rickert and Rochelle M. Long. Tissue Distribution of 2,4-Dinitrotoluene and Its Metabolites in Male and Female Fischer-344 Rats 286

J. L. Schardein, J. E. Fitzgerald, J. L. Sanyer, E. J. McGuire, and F. A. de la Iglesia. Preclinical Toxicology Studies with a New Antiarrhythmic Agent: Pirmenol Hydrochloride (CI-845) 294

Erratum

Volume 21, Number 4, April 1972: Carrol S. Weill, "Statistics vs Safety Factors and Scientific Judgment in the Evaluation of Safety for Man," pp. 454–463 302

Announcement 303

NUMBER 3, DECEMBER 1980

M. Bornhausen, H. R. Müsch, and H. Greim. Operant Behavior Performance Changes in Rats after Prenatal Methylmercury Exposure 305

Mary Jo Vodicnik, Andrew H. Glickman, Douglas E. Rickert, and John J. Lech. Studies on the Disposition and Metabolism of Pentachloroanisole in Female Mice 311

King-Lit Wong, Richard Cachia, and Curtis D. Klaassen. Comparison of the Toxicity

and Tissue Distribution of Cadmium in Newborn and Adult Rats after Repeated Administration 317

ILENE H. RAISFELD. Pulmonary Toxicity of Bleomycin Analogs 326

HARTMUT FRANK, THOMAS HINTZE, DETLEF BIMBOES, AND HERBERT RENNER. Monitoring Lipid Peroxidation by Breath Analysis: Endogenous Hydrocarbons and Their Metabolic Elimination 337

JWAHARLAL MARWAHA, ROBERT FREEDMAN, AND BARRY HOFFER. Electrophysiological Changes at a Central Noradrenergic Synapse during Thallium Toxicosis 345

ROBERT P. HANZLIK, RICHARD STITT, AND GEORGE J. TRAIGER. Toxic Effects of Methylcyclopentadienyl Manganese Tricarbonyl (MMT) in Rats: Role of Metabolism 353

KENNETH L. CHEEVER, DONALD E. RICHARDS, AND HARRY B. PLOTNICK. Metabolism of *ortho*-, *meta*-, and *para*-Toluidine in the Adult Male Rat 361

LAURENCE D. FECHTER, MANOHAR THAKUR, BLAIR MILLER, ZOLTAN ANNAU, AND UMA SRIVASTAVA. Effects of Prenatal Carbon Monoxide Exposure on Cardiac Development ... 370

R. M. MCCLAIN AND R. M. HOAR. Reproduction Studies with Carprofen, a Nonsteroidal Anti-Inflammatory Agent in Rats 376

R. M. MCCLAIN, F. RUBIO, W. DAIRMAN, AND B. KOECHLIN. Factors Related to Increased Susceptibility to Intestinal Lesions with Nonsteroidal Anti-Inflammatory Agents in the Lactating Rat 383

KAZUO NOMIYAMA, KANJI MATSUI, AND HIROKO NOMIYAMA. Effects of Temperature and Other Factors on the Toxicity of Methylmercury in Mice 392

DONALD R. MATTISON AND MARIA R. NIGHTINGALE. The Biochemical and Genetic Characteristics of Murine Ovarian Aryl Hydrocarbon (Benzo[*a*]pyrene) Hydroxylase Activity and Its Relationship to Primordial Oocyte Destruction by Polycyclic Aromatic Hydrocarbons 399

D. J. ECOBICHON, A. M. COMEAU, AND P. H. CAMERON. Chronic Toxicity of Technical Fenitrothion in Male Rats 409

JEANNE R. MCLACHLIN, ROBERT A. GOYER, AND M. GEORGE CHERIAN. Formation of Lead-Induced Inclusion Bodies in Primary Rat Kidney Epithelial Cell Cultures: Effect of Actinomycin D and Cycloheximide 418

C. L. MIRANDA, P. R. CHEEKE, J. A. SCHMITZ, AND D. R. BUHLER. Toxicity of *Senecio jacobaea* (Tansy Ragwort) in Rats 432

SHORT COMMUNICATION

E. H. HERMAN, W. JORDAN, B. ARDALAN, D. S. ZAHARKO, B. J. BOLTEN, AND D. A. COONEY. Toxicologic Effects of a High Dose of Thymidine in Mice 443

AUTHOR INDEX FOR VOLUME 56 447

SUBJECT INDEX FOR VOLUME 56 449

CHEMICAL INDEX FOR VOLUME 56 453